DOCUMENT RESUME

ED 287 123 CG 020 252

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TITLE Truth and Consequences: Believing as Adaptive Behavior.
PUB DATE Apr 87
NOTE 26p.; Paper presented at the Annual Meeting of the Eastern Psychological Association (Arlington, VA, April 9-12, 1987).
PUB TYPE Reports - General (140) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Adjustment (to Environment); *Beliefs; *Cognitive Psychology; *Cognitive Style; *Experience; Heuristics; Models; Personality Traits; Therapy

ABSTRACT

A theoretical cornerstone of cognitive therapy is the idea that the relationship between experience and cognition, the interpretation of experience, is recursive. Human beings can respond to a given experience with more than one description and/or explanation of the experience and these alternative interpretations can have different experiential consequences. A cognitive interpretation which is repeatedly or habitually produced in response to a variety of experiences is a belief. This paper uses the idea of a recursive relationship between experience and cognition to propose a heuristic model of believing as a purposeful activity by which the human organism adapts to its environment. The belief "Earth is being explored by extraterrestrials" is used as an example in describing the four stages of this model: (1) generating an interpretation of an experience; (2) justifying the interpretation; (3) enacting the interpretation; and (4) evaluating the interpretation vis-a-vis experiential consequences. Interrelationships among the stages are explained. The practice of cognitive therapy is discussed in terms of the model, and sociocultural implications of the model are considered. (NB)

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Truth and Consequences: Believing as Adaptive Behavior

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Abstract

A theoretical cornerstone of cognitive therapy is the idea that the relationship between experience and cognition, the interpretation of experience, is recursive. This idea is the basis for a heuristic model of believing as an active process by which the human organism adapts to its environment. Stages of the process are described in detail, using the belief "Earth is being explored by extraterrestrials" as an example. The practice of cognitive therapy is discussed in terms of the model, and sociocultural implications of the model are considered.

Truth and Consequences: Believing as Adaptive Behavior

Contemporary cognitive approaches in psychotherapy emphasize the importance of cognition in creating and relieving emotional distress (Beck, 1976; Bedrosian & Beck, 1980; Ellis, 1962, 1977, 1979a, 1979b; Mahoney & Arnkoff, 1978; Meichenbaum, 1977). Recent research has attempted to explore the relationship between cognition and emotion, to examine how covert and overt behaviors mediate this relationship, and to evaluate the effectiveness of various cognitive therapy techniques (Greenberg & Safran, 1984; Lazarus, 1982, 1984; Mahoney, 1974; Miller & Berman, 1983; Rachman, 1981; Zajonc, 1980, 1984).

A theoretical cornerstone of cognitive therapy is the idea that the relationship between experience and cognition, the interpretation of experience, is recursive. Briefly, this means that human beings can respond to a given experience with more than one description and/or explanation of the experience and that these alternative interpretations can, in turn, have different experiential consequences.

For example, suppose I submit this paper for publication and it is rejected. Consider two alternative descriptive interpretations of this experience:

1. "What a disaster!"
2. "What a challenge!"

Neither interpretation may be more justifiable than the other. Yet the application of one interpretation or the other may lead to very different experiential consequences. If I apply interpretation 1, I may feel discouraged and decide not to write any more papers. If I apply

interpretation 2, I may feel hopeful and decide to keep on writing.

The work of the cognitive therapist involves, among other things, helping clients learn to modify their interpretations of experiential antecedents with the goal of producing more desirable experiential consequences. Often I respond to a client's verbalized interpretation of an experience with questions such as these: "What happens when you interpret your experience in this way? What do you do? How do you feel?" I see clients discover that they can change the quality of their emerging experience by choosing cognitive interpretations in view of their consequences.

A cognitive interpretation which is repeatedly or habitually produced in response to a variety of experiences is called a belief. "Adopting a belief" is the process of increasing the frequency with which one responds to experience with a particular interpretation. "Relinquishing a belief" is the process of decreasing the frequency with which one responds to experience with a particular interpretation. Thus, beliefs are by-products of the behavior of believing, or making cognitive interpretations. Like other behaviors, believing can be evaluated in terms of how adaptive it is for the observer in various environmental contexts: interpretations which are adaptive in some contexts may not be adaptive in others.

The intent of this paper is to propose a heuristic model of believing as a purposeful, potentially conscious, activity by which the human organism adapts to its environment. The model is, itself, a cognitive interpretation of my own clinical experiences as a therapist.

First, I will outline the model of believing as adaptive behavior. Next, I will discuss the practice of cognitive therapy in terms of the model. Finally, I will suggest some sociocultural implications of the model and locate the concept of believing as adaptive behavior within the history of ideas.

Believing as Adaptive Behavior: A Model

Human behavior can be described as goal-directed, or teleologically determined, rather than as mechanistically or randomly determined (Rychlak, 1979). An overriding goal for human beings is survival of the individual and of the species, since the pursuit of other goals is contingent upon there being people around to pursue them. Human behavior is said to be adaptive to the extent that it promotes survival and other goals of the organism within its particular environmental context.

Adaptability in human behavior is achieved cybernetically--that is, via feedback mechanisms for correcting behavior in view of its goals. The actual effects of behavior are continually assessed against desired effects, or goal states, and information about discrepancies between actual and desired effects is used to modify ongoing behavior (Ackoff & Emery, 1972).

If believing is one kind of adaptive behavior, then we may describe the activity of believing as a process, or series of stages, with built-in feedback loops. Consider the following model, depicted schematically in Figure 1:

Insert Figure 1 about here

Stage I. Generating an interpretation of an experience

Stage II. Justifying the interpretation

Stage III. Enacting the interpretation

Stage IV. Evaluating the interpretation vis-a-vis experiential consequences

Following are descriptions of each of these stages and their interrelationships.

Stage I. Generating an interpretation of an experience.

Experience is created as the observer's perceptual systems interact with his or her internal and external environments. The process of perception is, itself, the first level in a three-level hierarchy of interpretive processes. The second and third levels, description and explanation, are cognitive interpretive processes and are the ones with which I am concerned in this model.

Descriptive interpretations can be analyzed as two or more concepts in some relationship--that is, as a proposition (x). Suppose that in response to the experience of seeing a strange flying object I generate this interpretation: "I see a UFO." In this example the concepts are I and UFO, and the relationship is see. Concepts and propositions are often referred to as schemata by cognitive (Neisser, 1976) and developmental (Flavell, 1985) psychologists, and they are represented internally in both verbal and nonverbal codes--words and images.

Explanatory interpretations are essentially two (or more) propositions in some relationship, usually a relationship of implication (x y). Suppose that, having described my experience as "I see a UFO," I generate this explanatory interpretation: "I see a UFO because earth is being explored by extraterrestrials." In this example the propositions are "I see a UFO" (x) and "Earth is being explored by extraterrestrials" (y). The relationship is causality, with (x) implying (y). In practice, the description of the experience is often omitted in the statement of the explanation: "Earth is being explored by extraterrestrials."

The explanatory level of interpretation rests upon the descriptive level: my explanation of my experience depends upon how I have described the experience to myself. Thus, had I described my experience in the example as "I am having a visual hallucination," I might be inclined to generate an entirely different explanation: "I haven't slept in three days."

Contextual factors are important in determining what interpretations are generated in response to a particular experience. Such factors can be roughly classified as either developmental or situational. Developmental factors include the observer's level of cognitive development, repertory of existing concepts and beliefs, and experiential history. Situational factors include the observer's sociocultural context and the specific circumstances of the experience itself.

The observer's level of cognitive development determines the level of abstraction and the degree of complexity of cognitive interpretations.

Observers with advanced cognitive skills spend relatively more time performing internal operations on schemata and creating meta-schemata, or concepts about concepts. The descriptions and explanations generated by these observers tend to be embedded in overlapping systems of schemata, or world views. In the example, my interpretation of the UFO experience in terms of extraterrestrials could reflect a whole network of ideas about life on other planets and interplanetary travel.

Related to the level of cognitive development is the repertory of existing concepts and beliefs. Before creating new schemata, the observer is likely to respond to ongoing experience with schemata that are already available within his/her cognitive repertory. In the example, a three-year-old would be unlikely to generate an interpretation involving UFOs, since the concept of UFO is not already available in his/her repertory.

The observer's experiential history, encoded in long-term memory, can provide information about the effects of applying particular interpretations in the past and, thereby, may influence the generation of interpretations in the present. In the UFO example, if I have interpreted similar experiences in terms of extraterrestrials, with desirable consequences, I may be more likely to generate the same interpretation in response to my current experience.

The observer's sociocultural context determines what kind of interpretations are sanctioned by the observer's milieu and, thereby, influences the likelihood of a particular interpretation being generated. In the example, I may be more likely to interpret my UFO

experience in terms of extraterrestrials if I belong to the Association for Transpersonal Psychologists than if I belong to the Psychoanalytic Institute.

Finally, the specific circumstances of the experience itself--how, when, and where--may influence the observer's interpretation of it. In the example, if I have been smoking marijuana, I may be more likely to interpret my UFO experience in terms of the drug than in terms of extraterrestrials.

Stage II. Justifying the interpretation. After an interpretation has been generated, the next step is to justify it--that is, to decide whether or not it is acceptable. This decision is made by applying a set of procedural rules, chosen by the observer. The choice of rules for justifying the interpretation and the process of justification per se are influenced by the contextual factors outlined above.

In the UFO example, suppose the task is to justify the explanatory interpretation "Earth is being explored by extraterrestrials." A scientist might proceed to justify this interpretation by generating predictions and making empirical observations: the interpretation would be accepted if and only if the observations matched the predictions. A theologian might proceed by praying and reading scripture: the interpretation would be accepted if and only if it were revealed. A child might proceed by asking his or her mother: the interpretation would be accepted if and only if it were sanctioned by parental authority.

If the interpretation is accepted, the observer proceeds to Stage III ("Enacting the Interpretation"). Otherwise, the interpretation

is discarded and the observer returns to Stage I to generate alternative interpretations.

Stage III. Enacting the interpretation. Enacting an interpretation of an experience involves translating the interpretation into motoric and physiological responses. That is, interpretations of experience are scripts or programs for action. Using the UFO example, I may be more likely to make attempts to communicate with the visitors if I have generated the interpretation "Earth is being explored by extraterrestrials" than if I have generated some other interpretation, such as "I haven't slept in three days."

Exactly how the interpretation is enacted is determined by the contextual factors outlined above, as well as by the observer's behavioral repertory. Thus, efforts to communicate with extraterrestrials might depend upon the presence of other beliefs in my repertory--for example, "Communication with extraterrestrials is both possible and desirable"--and upon the presence of a supportive social environment --for example, a spouse who shares my beliefs.

Stage IV. Evaluating the interpretation vis-a-vis experiential consequences. Evaluating an interpretation of an experience involves asking two questions: (1) What are the experiential consequences of this interpretation and its behavioral enactments? (2) Does this interpretation have utility in the present context: Is it adaptive for survival and other goals of the observer?

Using the UFO example, one experiential consequence of applying the interpretation "Earth is being explored by extraterrestrials" might

be exhaustion from staying up all night looking for UFOs through binoculars. Another experiential consequence might be anger at the federal government for failing to make adequate budget allocations for research on UFOs and extraterrestrial communication. The adaptive utility of my interpretation and my enactments of it would depend upon my goals--for example, whether I am trying to win the Nobel Prize or to get myself committed to a psychiatric institution.

In generic terms, the evaluation of an interpretation of experiential antecedents requires that the observer (1) generate a description of the experiential consequences and (2) compare the description of actual consequences with a description of desirable consequences. However, as in the case of justifying interpretations (Stage II), the specific procedural rules for evaluating interpretations are chosen by the observer, and the process of evaluation is influenced by contextual factors. For example, if I do not believe that I am personally responsible for my cognitive interpretations and their experiential consequences, I may not expend much energy on Stage IV.

Using the information generated in the evaluation stage, the observer may decide to enact the interpretation in other ways, or she/he may discard the interpretation and generate an alternative interpretation, which is then justified, enacted, and evaluated as before. An interpretation which is repeatedly applied in response to a variety of experiences is eventually incorporated into the observer's belief system(s).

Cognitive Therapy: Facilitating Believing as Adaptive Behavior

My model of believing as adaptive behavior provides a blueprint for the interventions of the cognitive therapist. Thus, the goal of therapy is for the client to interpret experiences in an increasingly adaptive manner. The tasks of the therapist are to assist the client in performing the activities of Stages I through IV in response to ongoing experience and to teach the client how to use the model independently.

How does this conceptualization of cognitive therapy compare with what other cognitive therapists are doing?

One of the most popular and most representative versions of cognitive therapy is the one developed by Ellis (1962, 1977, 1979a, 1979b). Ellis's approach, called rational-emotive therapy (RET), assumes that emotional distress occurs when clients apply one or more "irrational beliefs" in response to events. Ellis (1962) originally posited eleven beliefs as instrumental in this process. Later (1979a) he suggested that these eleven irrational beliefs could be condensed to three:

1. "I must be competent and successful, and I must win the approval of significant people in my life."
2. "Others must treat me kindly and fairly."
3. "I must have the things I really want."

The tasks of the rational-emotive therapist are (1) to demonstrate to the client the specific connections between activating events, the client's beliefs, and the client's emotional distress; (2) to challenge

the client's irrational beliefs; and (3) to suggest alternative, rational beliefs.

RET, like other cognitive therapies, uses a variety of cognitive and behavioral techniques to accomplish these tasks (Ellis, 1979b). But the one technique which distinguishes RET from the other approaches is Ellis's didactic method of disputing irrational beliefs. In this method, the client is taught to dispute each of the three irrational beliefs (or the specific variations of it operating in the client's problem) by asking a series of questions:

1. "What is the irrational belief I want to dispute?"
2. "Can I rationally support this belief?"
3. "What evidence exists for the truth of this belief?"
4. "What evidence exists for the falseness of this belief?"

Through the method of disputing irrational beliefs, applied in the therapy sessions and in homework assignments, the client relinquishes the irrational beliefs and replaces them with their rational counterparts, such as:

1. "It is not necessary for me to be always competent and successful, or to win the approval of significant others."
2. "It is not necessary for others always to treat me fairly."
3. "It is not necessary forme always to have the things I want."

Empirical studies on the efficacy of RET have yielded ambiguous results, and other researchers have commented on various conceptual problems in the RET theory (Arnkoff & Glass, 1982; DiGiuseppe, Miller & Trexler, 1977; Eschenroeder, 1982; Mahoney, 1974, 1977; Smith, 1982;

Smith & Allred, 1986). Following is a brief critique of Ellis's approach in terms of my model.

The concept of believing as adaptive behavior. The central idea of my model is that believing is a behavior whereby the organism adapts to its environment. As a corollary, the model proposes that the utility of a belief should be evaluated with respect to the particular environmental context in which it is applied: a belief can be adaptive in some situations and maladaptive in others.

Ellis shares the assumption of my model that cognition has experiential consequences. However, in RET there is no emphasis upon teaching the client to evaluate the experiential consequences of cognitive interpretations in context. Rather, Ellis focuses on cognitions which are, supposedly, maladaptive for all clients under all circumstances (Arnkoff & Glass, 1982).

The specification of contextual factors. My model identifies some contextual factors which are likely to influence the client's performance of each stage (I-IV) in the process of making adaptive cognitive interpretations of experience: the client's level of cognitive development, repertory of existing beliefs, experiential history, sociocultural context, and immediate circumstances. Assessment of these factors prior to designing therapeutic interventions should maximize the impact of the therapist's efforts.

Ellis gives some attention to an assessment of the client's repertory of existing beliefs, experiential history, and immediate circumstances, but he does not appear to acknowledge the importance of

the client's level of cognitive development or sociocultural context. Nor does he specify how therapeutic interventions would require modification as a result of such an assessment.

The distinction between justification and evaluation. My model makes a clear distinction between the justification of a cognitive interpretation (Stage II) and the evaluation of the interpretation vis-a-vis experiential consequences (Stage IV). Ellis does not make this distinction: he assumes that "irrational" beliefs--or beliefs which result from "errors" in thinking--are automatically maladaptive. Yet, as Arnkoff & Glass (1982) observe, beliefs can be irrational (in the traditional sense of the term) and be quite useful. For example, the belief that tomorrow will be better than today may be more adaptive than the belief that tomorrow will be worse, although neither belief is rational, in the sense of being supported by empirical data. Furthermore, as Marzillier (1986) points out, the kinds of beliefs which are dealt with by Ellis and other cognitive therapists are not really suitable for logical or empirical analysis, since they tend to be metaphysical or value assumptions, rather than empirical generalizations.

The importance of enactment. My model acknowledges the importance of verbal and nonverbal enactment in determining the experiential impact of any cognitive interpretation. Ostensibly there are significant functional differences between having a belief in one's cognitive repertory, enacting the belief covertly in words and images ("self-talk"), and enacting the belief overtly in behavior. But RET does not address these differences systematically in designing assessment and intervention

strategies (Eschenroeder, 1982; Smith, 1982).

Therapy as deutero-learning. An implication of my model is that believing-as-adaptive-behavior is a skill which can be applied in any context. According to this view, a primary task of the therapist is to teach the client to use the model independently. In RET there is some emphasis on this idea, but there is relatively more emphasis on resolving specific emotional symptoms under the supervision of the therapist.

Sociocultural Implications

Several years ago I began to speculate about the broader sociocultural implications of what I observe in the therapy room. It occurred to me that societies, like individual clients, often interpret their experiences in ways which have painful and destructive consequences. For example, it has been popular in our society to believe that white men are superior to black people and women, and it has been popular to believe that war is a legitimate way to resolve conflict. But what happens when people enact these beliefs?

To be sure, in this century we have become somewhat more sophisticated and less dogmatic in how we approach the tasks of generating and justifying interpretations of experience. We have achieved a kind of ideological pluralism in our willingness to acknowledge that the same experience may support a variety of interpretations. And we are more likely than our ancestors to recognize that decisions about the justifiability, or acceptability, of an interpretation are human decisions, employing rules and criteria devised by human beings.

However, to say that we are more likely to recognize alternative beliefs as equally acceptable is not to say that we are more willing to accept collective responsibility for the experiential consequences of applying our beliefs. That we are not so inclined is evidenced by the relative crudeness of our methodology for evaluating beliefs (Stage IV), as contrasted with the degree of variety and refinement in our methodologies for justifying beliefs (Stage II).

How can we account for this failure of our society to perform the collective behavior of believing in an adaptive manner? A possible explanation emerges when we remember that the concept of beliefs having experiential consequences evolves within the historical context of other concepts.

Specifically, consider two alternative ways of conceptualizing truth and the activity of knowing. If one views truth as an external absolute, independent of human existence, then the activity of knowing might be described as <u>discovering</u> the truth. If one views truth as a human artifact, a by-product of successful adaptation within a specific context, then the activity of knowing might be better described as <u>constructing</u> the truth. Questions about the experiential consequences of beliefs are more likely to arise from the latter perspective than from the former.

As reflected in the writings of our professional philosophers (Sahakian, 1981), the "discovery" paradigm has dominated Western thought for centuries, and the "construction" paradigm is a relative newcomer. Kant (1787) was first to insist that knowledge is

inescapably constrained by the perspective of the knower. His point received further elaboration by the pragmatists (Thayer, 1968) and by the existentialists (Barrett, 1958), who emphasized the individual's personal responsibility for his/her own experience and regarded knowledge as a tool for exercising this responsibility. More recently we have the contributions of the radical constructivists (Maturana & Varela, 1980; Segal, 1986; Watzlawick, 1984), who stress the contextual nature of truth and regard the activity of knowing as a recursive exchange between the observer and himself/herself, rather than as "processing information" about the environment.

The significance of this trend, in my view, is that we are witnessing the emergence of a crucial stage in our cultural evolution. Once we have grasped the idea that a belief is "true" by virtue of its adaptive utility for the believer-in-context, we will be ready to examine the methods by which we justify and evaluate our beliefs and to assume full responsibility for the beliefs we enact individually and collectively.

Conclusions

In this paper I have proposed a model of believing as adaptive behavior and have discussed implications of the model for the practice of cognitive therapy and for our sociocultural evolution. From this vantage point I can see two directions for the further development of these ideas.

First, there is the obvious task of exploring how the model of believing as adaptive behavior can be applied (enacted) in assessment

and intervention with individuals and social systems. It is one thing to propose that the activity of adaptive believing can be described in terms of the stages of the model. It is another thing to specify how the therapist can effectively assess the client's performance of the stages and intervene to facilitate this performance. Applying the model in work with social systems is even more challenging. Are the mechanisms by which a social system engages in believing as adaptive behavior like those used by individuals, or are there important differences? How do collective belief systems evolve? Fortunately, family systems theorists (Bogdan, 1984) have already begun to address these and related questions, and their ideas may be applicable to larger social systems.

Second, throughout this paper I have talked about the experience of the observer without making any distinction between conscious and unconscious levels of experience, or between the states of consciousness through which experience is filtered. Yet we know that human beings are capable of achieving altered states by manipulating perceptual processes (Bentov, 1977; Tart, 1975; Wilber, 1981). The ability to alter consciousness suggests the possibility of considering experiencing itself as a form of adaptive behavior--a process parallel to, and interacting with, cognition. This idea is explored in a forthcoming paper.

References

Ackoff, R.L., & Emery, F.E. (1972). On purposeful systems. Chicago: Aldine.

Arnkoff, D.B., & Glass, C.R. (1982). Clinical cognitive constructs: examination, evaluation, and elaboration. In P.C. Kendall (Ed.), Advances in cognitive-behavioral research and therapy (Vol. 1). New York: Academic Press.

Barrett, W. (1958). Irrational man. New York: Doubleday.

Beck, A.T. (1976). Cognitive therapy and the emotional disorders. New York: International Universities Press.

Bedrosian, R.C., & Beck, A.T. (1980). Principles of cognitive therapy. In M.J. Mahoney (Ed.), Psychotherapy process: current issues and future directions. New York: Plenum.

Bentov, I. (1977). Stalking the wild pendulum. New York: E.P. Dutton.

Bogdan, J.L. (1984). Family organization as an ecology of ideas: an alternative to the reification of family systems. Family Process, 23, 375-399.

DiGiuseppe, R.A., Miller, N.J., & Trexler, L.D. (1977). A review of rational-emotive psychotherapy outcome studies. Counseling Psychologist, 7, 64-72.

Ellis, A. (1962). Reason and emotion in psychotherapy. New York: Lyle Stuart.

Ellis, A. (1977). The basic clinical theory of rational-emotive therapy. In A. Ellis & R. Grieger (Eds.), Handbook of rational-emotive therapy. New York: Springer.

Ellis, A. (1979). Rational-emotive therapy. In A. Ellis & J.M. Whiteley (Eds.), Theoretical and empirical foundations of rational-emotive therapy. Monterey, CA: Brooks/Cole.

Ellis, A. (1979). The practice of rational-emotive therapy. In A. Ellis & J.M. Whiteley (Eds.), Theoretical and empirical foundations of rational-emotive therapy. Monterey, CA: Brooks/Cole.

Eschenroeder, C. (1982). How rational is rational-emotive therapy? A critical appraisal of its theoretical foundations and therapeutic methods. Cognitive Therapy and Research, 6, 381-392.

Flavell, J.H. (1985). Cognitive development. Englewood Cliffs, NJ: Prentice-Hall.

Greenberg, L.S., & Safran, J.D. (1984). Integrating affect and cognition. Cognitive Therapy and Research, 8, 559-579.

Kant, I. (1787). Critique of pure reason.

Lazarus, R.S. (1982). Thoughts on the relation between emotion and cognition. American Psychologist, 37, 1019-1024.

Lazarus, R.S. (1984). On the primacy of cognition. American Psychologist, 39, 124-129.

Mahoney, M.J. (1974). Cognition and behavior modification. Cambridge, MA: Ballinger.

Mahoney, M.J. (1977). A critical analysis of rational-emotive theory and therapy. Counseling Psychologist, 7, 44-46.

Mahoney, M.J., & Arnkoff, D.B. (1978). Cognitive and self-control therapies. In S.L. Garfield & B.E. Bergen (Eds.),Handbook of psychotherapy and behavior change (2nd Ed.). New York: Wiley.

Marsillier, J.S. (1986). Changes in depressive beliefs: an analysis of Beck's cognitive therapy for depression. In P.C. Kendall (Ed.), Advances in cognitive-behavioral research and therapy (Vol. 5). New York: Academic Press.

Maturana, H.R., ç Varela, F.J. (1980). Autopoiesis and cognition. Dordrecht, Holland: D. Reidel.

Meichenbaum, D. (1977). Cognitive-behavior modification: an integrative approach. New York: Plenum.

Miller, R.C., & Berman, J.S. (1983). The efficacy of cognitive behavior therapies: a quantitative review of the research evidence. Psychological Bulletin, 94, 39-53.

Neisser, U. (1976). Cognition and reality. San Francisco: W.H. Freeman.

Rachman, S. (1981). The primacy of affect: sometheoretical implications. Behavior Research and Therapy, 19, 279-290.

Rychlak, J. (1979). Discovering free will and personal responsibility. New York: Oxford University Press.

Sahakian, W.S. (1968). History of philosophy. New York: Barnes & Noble.

Segal, L. (1986). The dream of reality: Heinz von Foerster's constructivism. New York: Norton & Co.

Smith, T.W. (1982). Irrational beliefs in the cause and treatment of emotional distress: a critical review of the rational-emotive model. Clinical Psychology Review, 2, 505-522.

Smith, T. W., & Allred, K.D. (1986). Rationality revisited: a reassessment of the empirical support for the rational-emotive model. In P.C. Kendall (Ed.), Advances in cognitive-behavioral research

and therapy (Vol. 5). New York: Academic Press.

Tart, C.T. (1975). States of consciousness. New York: E.P. Dutton.

Thayer, H.S. (1968). Meaning and action: a critical history of pragmatism. Indianapolis: Bobbs-Merrill.

Watzlawick, P. (1984). The invented reality. New York: Norton & Co.

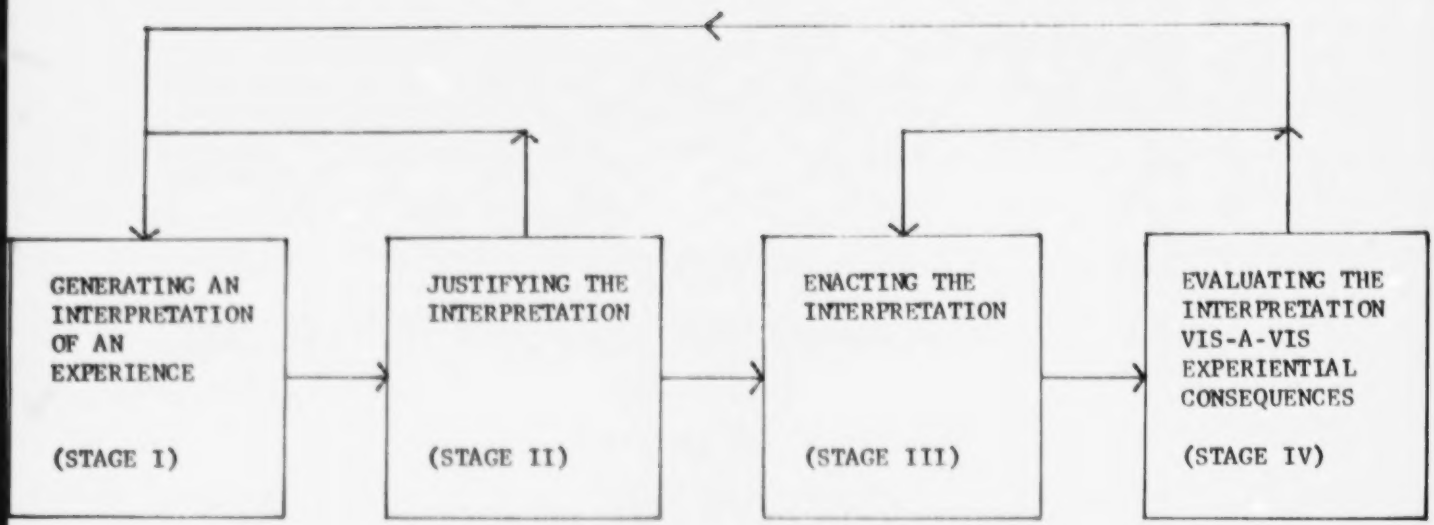
Wilber, K. (1981). No boundary. Boulder, CO: Shambhala Publications.

Zajonc, R.B. (1980). Feeling and thinking. American Psychologist, 35, 151-175.

Zajonc, R.B. (1984). On the primacy of affect. American Psychologist, 39, 117-123.

Figure Caption

Figure 1. Believing as adaptive behavior: a model.


GENERATING AN INTERPRETATION OF AN EXPERIENCE
(STAGE I)
JUSTIFYING THE INTERPRETATION
(STAGE II)
ENACTING THE INTERPRETATION
(STAGE III)
EVALUATING THE INTERPRETATION VIS-A-VIS EXPERIENTIAL CONSEQUENCES
(STAGE IV)